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THE STATUS OF THE CLINICAL PATHOLOGIST

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IN EFFECT, Doctor Kilduffe's article and the many and interesting discussions constitute a symposium on one of the much-discussed angles of medicine and health progress.

It is often necessary for an editor who examines hundreds of manuscripts a year to drive himself through some of his work. Then, again, copy comes along that is so intensely interesting that the editor lays his "blue pencil" aside and gives himself up to the joy of reading. This symposium is in the latter class. Rarely will the physician reader encounter so many clearly elucidated angles to a vexing problem as are here brought together — by men who do not, by any means, entirely agree.—Editor.

Discussants are M. C. Terry, John W. Shuman, Elmer W. Smith, E. H. Ruediger, William F. Cheney, Wilfred H. Kellogg, William Ophuls, L. S. Schmitt, Newton Evans, Rene Bine, A. W. Hewlett, William J. Kerr, Stanley Stillman, Gertrude Moore, F. R. Nuzum, Walter V. Brem, A. M. Moody.

ANYONE attempting a classification of physicians as individuals or groups, in accordance with their qualifications or attainments, is apt to find the task entirely gratuitous and repaid only by criticism of his efforts. A recent discussion anent the status of the clinical pathologist—or, perhaps, it were better looked upon as an initiation of a discussion, for the subject is not to be dismissed offhand by a dogmatic pronunciamento or two—forms no exception to the rule, but without discussion and the comparison of views and opinions, no conclusions can ever be reached.

It is customary, in philosophical discussions, at least—and it would seem as if the clinical pathologist must exercise a certain amount of philosophy in this matter—to clarify the preliminaries by some attempt to clearly define the subject matter, and it would be advantageous, therefore, to more or less succinctly determine if possible what *is* a clinical pathologist before attempting to assign to him offhand a classified niche in the practice of medicine.

That some such attempt is necessary is obvious, for even to the casual observer it is clear that there are many conceptions as to what constitutes a clinical pathologist, all very essentially modifying and effecting attempts at his classification. It is a common occurrence to note in the advertising columns of medical journals, for example, advertisements seeking "Laboratory technician; must be M. D.," evidencing at once that in that hospital, and in the minds of its directors, a pathologist is simply a person of more or less skill and training in the manipulation of laboratory apparatus.

This is not altogether surprising and capable of some explanation, but it *is* surprising and not so readily explained to find a source of information and authority standing sponsor for the dictum that "the status of the clinical pathologist is not the same as that of the internist or surgeon. The latter deals with variables—human beings—the former conducts manipulations on fixtures—inanimate substances."

Fortunate it is, indeed, that even a pronunciamento of authority may—when needs must—be subjected to scrutiny. Unfortunate it is, also, that by many this statement will be accepted at its face value as crystallizing a somewhat common idea that the clinical pathologist, in some ways, stands apart from other men and that, in some way yet to be exactly defined, his qualifications are different from and, perhaps, less exalted than those of his purely clinical brethren.

That some such attitude exists cannot be denied; that it can be justified may be disputed. The responsibility for its inception can only be placed with difficulty—if at all; for its continuance the clinical pathologist himself is largely responsible.

In the early days of medicine it was comparatively easy to separate the medical profession into three broad groups:

I. Those, comparable to the physician of today, who studied the patient and his symptoms and proceeded accordingly and whose work was done within the living body of the patient, as it were.

II. Those, comparable to the surgeon, whose work was done *on* the living body of the patient; who rearranged it and improved upon the defects of nature and who, as many have maintained, detected and corrected the errors of the first group.

III. Those, pathologists as originally conceived, whose work was done largely independently of the living body in a study of the causes and effects of disease and its mechanism and who, inadvertently, at times revealed the errors of omission and commission of both the preceding groups.

In those comparatively prehistoric days the field of laboratory examination was restricted, the tests

and methods of examination relatively few in number, and their indications and significance apparently clear and distinct. Possibly it was in those days that the idea of pathology as the "handmaid of medicine," instead of its colleague, first took root.

Those were the days when albumin in the urine meant "Bright's disease" and sugar diabetes. In those pleasant times every man was his own urologist and microscopist; he made his own examinations and determined their significance at will. Those without the time, or not caring to give it, sent their work to others who more or less restricted their efforts to those lines and whose function, as the practitioner saw it, was simply to make the tests and furnish him with a report.

With the evolution of scientific medicine, the scope and extent of laboratory examinations and technic broadened by leaps and bounds until, at the present time, unless by strenuous effort and continuous study and reading he manages to keep apace, the average individual soon finds himself lost in a maze of complexities. In fact, so numerous and so varied and so complex have the methods of laboratory study become that now even the laboratory has its specialized departments.

In the early, and even relatively recent, days the hospital laboratory, except in large and prominent institutions, was apt to be a somewhat forlorn corner in the basement or some place not especially desired by any other individual or department, and devoted to more or less routine examinations as dictated by the fancy or idiosyncrasies of the staff and the energy, ability, and initiative of the one in charge—too often, the resident physician, less often a more or less qualified technician.

At times, in order to gain a foothold in the hospital and as a stepping-stone to a future place on the clinical side of the staff, a younger man took the place as "pathologist," regardless of his primary desires or qualifications. Then came the movement for the betterment of hospitals and the establishment of the laboratory as an important and vital part of the hospital.

Forthwith, hospitals suddenly realized that laboratories must be equipped—particularly as regards personnel—and, likewise, that the supply of qualified and competent men was somewhat below the demand. With the usual eye to hospital expenses, salaries were not often of such proportions as to cause financial upheavals, and some reluctance and dismay grew out of the fact that pathologists could not be had for the same price as technicians, and some occasional surprise occurred to find that valiant pathologists now and then made their acceptance of positions contingent upon an equal footing on the staff with other staff physicians.

Not a little of the somewhat derogatory opinion held of the pathologist in some quarters may be laid to his willingness—often in a spirit of scientific endeavor—to accept positions with inadequate salaries and undignified standing, as regards his status on the staff. This is true of the present day in many instances. What other construction can be drawn when a great medical school, for example, advertises for a "well-qualified physician" who must be, it is stipulated, a graduate of one of several great universities, to take a position as whole-time pathologist to an affiliated hospital for the astounding remuneration of $2200 a year! Can it be wondered at that many hospitals not only offer inadequate salaries in return for the highest qualifications, but moreover, rule, in addition, that the pathologist shall not be allowed to see patients sent to him personally in consultation, and that when called to see patients in the wards or private rooms, with staff physicians, *his* status shall not be that of a consultant?

The difficulty is to understand why pathologists submit to such restrictions. Certainly, their status under such conditions is decidedly different from that of the surgeon or internist. In the endeavor to comply with the qualifications set up by hospital requirements, an important factor in the selection of a pathologist became, not what does he *know,* how fitted is he to correlate the work of the wards and the laboratory, but *how many kinds* of things can he do, how many different kinds of tests can he make? Technical and manipulative expertness became paramount, and the idea of the pathologist as a worker of tests was fostered and grew apace. A further helping hand to this conception was given by a certain proportion of physicians who look upon the test as the thing rather than its *interpretation;* who too often look upon the significance and interpretation of laboratory examinations as clear and simple, and who feel within themselves as omniscient competence, not only to select the most applicable and informative tests to be made, but, further, to announce in no uncertain terms its exact significance in the case at hand.

The status of the surgeon on the medical Olympus seems quite definite, and is easily ascertained on application; the status of the physician is not quite so clear. If by these latter are meant those who are especially trained and particularly adept in the diagnosis and treatment of medical conditions by medical means, their place in the sun may be more or less definitely determined; if, however, is meant the general practitioner who has progressed or catapulted into an office building, his exact status is determined, not by the fact that he deals with human beings—"variables"—but by his qualifications, scientific acumen, and ability.

It is somewhat difficult to see just why there should be any question as to the status of the pathologist or to be tolerant with discussion as to his place in medical practice. If recollection is not at fault, the great surgeons and many of those renowned among physicians founded their greatness upon a thorough training in pathology and pathological investigations. Was their clinical greatness achieved because or in spite of this, or did their knowledge and ability only commence with their initiation into the clinical world? Was their ability to make a diagnosis—upon which intelligent and successful treatment is always founded—aided or hampered by their training in things pathological?

NO FEAR OF CONTRADICTION NEED BE EXPERIENCED IF ONE LAYS DOWN AS A PREMISE FOR CORRECT DIAGNOSIS AND INTELLIGENT TREATMENT—EITHER MEDICAL OR SURGICAL—A THOROUGH KNOWLEDGE OF THE PATHOLOGY OF THE CONDITION. THE CLINICAL PATHOLOGIST POSSESSES SUCH KNOWLEDGE. WHEREFORE, THEN, IS HE OF LOWLY

STATURE UNLESS HE COUPLES A PRESCRIPTION OR TWO OR A METHOD OF TREATMENT WITH HIS LABORATORY FINDINGS AND THEIR INTERPRETATION?

Because "he deals with fixed substances." Let us contemplate this conception. This, perhaps, might be true of the technician—not of the pathologist who, if he is worthy of the name and possesses the confidence of his associates, certainly comes into close clinical and personal contact with the patient upon whom the tests are made and from whom test materials are secured.

The radiologist takes a picture, works with a multitude of "manipulations on fixtures and inanimate substances" most impressive to the uninitiated and yet, forsooth, is a respected and exalted member of the profession.

The serologist draws a specimen of blood and conducts a complement-fixation test—not an inspiring spectacle, to be sure, but one involving a most varied degree of skill and knowledge, and is looked upon askance. Wherein lies the difference? *The radiologist interprets his findings!* He is furnished with clinical data; privileged, when necessary, to conduct such examinations of the patient as are deemed of interest, and furnishes the clinician not only with the finished plate or film, but also with a statement as to the significance, in terms of the patient, of the picture presented. This seems to be the essential point of difference: The radiologist assumes, and is asked to assume, the responsibility for the interpretation of his findings, while the privilege is largely denied to the pathologist who is looked to simply for the report.

Now it is impossible to deny, if one is at all conversant with the subject, that it is not the making of the test, but its interpretation, its significance in terms of the particular case which is of value.

Technicians may be taught to perform various manipulations, sometimes of intricate and complicated character, but the end-result is simply a completed test—no more. The informative value of the test lies in its interpretation, and for that the technician is not qualified. For that is required a varied and extensive training, not only in pathology and immunology and a host of allied and related subjects, but, in addition, the training, skill, and experience and ability to read the results by a combined estimation of all the findings evaluated by observation, deduction and inferential reasoning concerned, not only with the test, but with the patient!

It seems to be more or less generally admitted—sub rosa at least—that the physician in general is not as well qualified as the radiologist to read and interpret the significance of x-ray pictures. It seems to be a more or less common conception, also, that anyone can read and interpret the results of laboratory examinations. The correctness of this last assumption seems open to discussion.

From the standpoint of the laboratory worker, cognizant of the number of laboratory reports which may be added to the patient's chart because of the extensive area now covered by the various methods of laboratory examination, it would seem that there is an all-important difference between the employment of laboratory methods and their clinical utilization.

No one is more quick than the clinical pathologist to note that the development of laboratory methods has had a tendency to detract from clinical acuteness in the study and analysis of the patient; to develop a tendency to demand of laboratory methods that they shall render unnecessary the, perhaps, arduous and at times burdensome analysis of the history and the results of a painstaking meticulous, thorough, and minute physical examination. This I have previously noted (Journal A. M. A., May 13, 1922), together with its effect upon the decadence of observation as a clinical art, and attention is again called to this by Conner in an able and timely paper in which he pleads for "an effort on the part of all of us to resist and counteract the growing inclination to regard the use of laboratory and instrumental aids as the chief means of diagnosis, and to give too little weight to the more laborious but more important measures of painstaking clinical observation and careful deductive reasoning." In other words, he pleads for the *intelligent* use of the laboratory as a *phase* of the examination of the patient and the interpretation of the findings in the light of *all* the information obtainable, thus emphasizing that the laboratory is most useful and informative to those by whom it is intelligently and not blindly used.

There always has been discussion as to who shall interpret the laboratory reports. As I have stated elsewhere (Med. Rev. of Rev., 1922): "Theoretically, the physician, as the one in close contact with the patient, should be the interpreter; actually, however, for even the laboratory finds itself divided into highly specialized departments, unless he be a man of exceptional training and experience, fortified by extensive reading and a retentive memory, it is almost impossible for the physician of today to be familiar with all the resources of the clinical laboratory of today."

THE QUESTION ULTIMATELY RESOLVES ITSELF INTO THIS: SHALL THE CLINICAL PATHOLOGIST BE PERMITTED—EVEN REQUESTED—TO ASSIST IN THE INTERPRETATION OF LABORATORY REPORTS ON THE ASSUMPTION THAT HE IS—OR SHOULD BE—WELL QUALIFIED BOTH FROM THE LABORATORY AND CLINICAL STANDPOINT TO EVALUATE THEM, OR SHALL THE INTERPRETATION OF LABORATORY REPORTS BE CONFINED SOLELY AND ENTIRELY TO THE CLINICIAN BY "DIVINE RIGHT," AS IT WERE, AND THE PATHOLOGIST BE SIMPLY THE INDIVIDUAL FROM WHOM THEY EMANATE?

This latter assumption concedes or attributes to the clinician *in general* an omniscient ability in this respect. However, when the clinical pathologist, as he does, observes the diagnosis of syphilis cast aside because of a single negative serologic report; or that a negative blood reaction is a source of amazement in the presence of neurosyphilis; when he is constantly appealed to as to the reason for and significance of an anti-complementary report; when he observes the more or less complete reliance placed upon the total white cell count in a suspected infection; the importance given to an isolated gastric analysis; the administration of bacterial vaccines in daily doses; requisitions for malaria, but neglect of the total white count when the patient has had *a* chill; the surprise that an agglutination test could be negative in the presence of undoubted typhoid

fever or the dismissal of this possibility because of a negative reaction; the fact that more laboratory tests are ordered for the corroboration of preconceived ideas than for their purely informative value; the lack of evident motive for the requisition of whole flocks of non-related laboratory tests difficult, to say the least, to correlate with the clinical findings or history, and the not infrequent tendency to consider exhaustive clinical or historical data unnecessary if there is a laboratory test applicable to the condition—confronted with these and other experiences common to all laboratory workers, it is not to be wondered at if the clinical pathologist at times has a fleeting doubt if *all* clinicians are able to utilize the laboratory to its fullest extent; or that the mechanism leading to the production of various positive reactions is *always* clearly understood and their clinical significance quite clear.

It is a safe statement to make that the intelligent practice of medicine demands an intelligent conception of the structure, physiology, and pathology of the part one essays to treat. The best clinician, be he surgeon, physician, or what not, is he who has the pathology of the condition at his finger-tips.

Although the clinical pathologist per se does not treat disease, it can be safely suggested that, knowing the pathology of the condition; the mechanism resulting in the manifestations which constitute its symptomatology; the methods of estimating the degree to which, as a result of the condition, functional efficiency is disturbed and the particular function impaired, together with the general resources at hand to combat these effects—although, perhaps, the pathologist might not be prepared to dash off a prescription or two offhand, it is quite likely that the measures he would ultimately suggest would be rationally conceived. It is not likely, for example, that he would prescribe expectorants in the stage of consolidation in pneumonia nor expect much from their use. If he deals only with "inanimate substances," with test tubes and reagents, he is not a real clinical pathologist. The real clinical pathologist is a doctor of medicine, with the same training as the surgeon or physician; equally well grounded in the clinical arts, and, moreover, particularly adept in the specialized manipulations of his chosen specialty, and able to interpret in terms of the patient the pathology he demonstrates in the laboratory.

He is a man who is capable not only of conducting various laboratory manipulations, but also by virtue of his special training, his reading, and his correlated laboratory and clinical experience, to apply them to the diagnostic problems at hand and, what is quite important, to select from those available, those which are likely to be informative. He is closely concerned with the treatment of disease as governed, and at times even indicated, by laboratory procedure. He should be, as has been said, the man who knows the most about disease.

He is the one to whom the thinking clinician, more interested in the welfare of his patient than the magnification of his dignity, can say: "Here is the patient. These are the clinical findings. This is the history. What can the laboratory do in the interests of this patient and his return to health?" And only when such a clinician and such a pathologist put their heads together are the interests of the patient best conserved.

The real clinical pathologist not only sees the test, but he also sees the patient and applies, not only his laboratory, but his clinical knowledge as well to a consideration of the problem. He works not for but *with* the clinician and, sometimes, when he steps over into the clinical world and becomes a physician or surgeon, he finds his status in that sphere readily established and not a whit impaired by his previous specialization in another sphere.

It is, perhaps, true that it is not the pathologist's duty to make the diagnosis for the clinician, but rather to supply him with informative data. It is equally true that there are times when the data requested by the clinician are neither informative per se nor apt to be made so by the interpretation put upon them. Under these—and, indeed, under all circumstances—the true status of the clinical pathologist should be evident: he should be openly, as he often now is indirectly, a consultant.

DISCUSSION

M. C. Terry, M. D. (Consolidated Building, Los Angeles)—I agree with Dr. Kilduffe that the clinical pathologist is a physician with the same training as the surgeon or internist, but I do not think he is equally well grounded in the clinical arts. If he were all that, then the thinking (and conscientious) clinician would endeavor to become a clinical pathologist himself, or he would say to the pathologist, "Here is the patient—take him," and we should soon have no pathologists. The clinical pathologist is a specialist, as Dr. Kilduffe has also said; let us recognize the limitations implied.

He should, of course, keep in touch with the clinic and with clinicians, the better to understand and explain to others the significance of his own work, for the new ideas such contact produces and for material for whatever special problem he may have in hand. But it is fortunate for him that his time is not often required for bedside consultation, even in cases in which a considerable amount of laboratory work is done. To a great extent he can choose his own consultations of this sort—true, without pay, as a rule.

The real clinical pathologist has few days without consultation in his laboratory or over the phone, and these are generally sufficiently clarifying for both the clinician and the pathologist. True, again, the pathologist seldom gets paid for this very real service, and that seems hardly fair, but here the pathologist's troubles are a part of the general social problem of medicine, and the solution of that problem is hardly in sight.

John W. Shuman, M. D. (Westlake Professional Building, Los Angeles)—Pathology is an integral part of medicine. It embraces bacteriology; it functions diagnostically and therapeutically in the laboratory upon material things, pre and post-agonal, pertaining to the human being. The term "clinical" pertains to bedside or clinic. The doctor of medicine who devotes most of his time and energy to pathology always has been and still is termed a pathologist; usually he is very weak along clinical lines. The doctor of medicine who devotes most of his time and energy to the study of subjective and objective signs and symptoms of disease at the bedside has always been and still is called a clinician; he, too, frequently is not well versed in pathology. It is logical to call an M. D. who is wisely interested in pathology and clinical medicine a clinical pathologist; he could be called a consultant in medicine. There is no more excuse for a well-informed consultant in medicine to misinterpret an x-ray series of the gastro-intestinal tract than there is for misinterpreting fecal vomiting or for his failure to recognize a malarial parasite than there is for him failing to recognize an enlarged spleen.

It is not the status of the clinical pathologist that we should discuss, but the status of clinical pathology. Kilduffe is quite right in reference to his "three prehistoric

groups as they used to be." I may add they are still with us, but in closer harmony. I have no regard for that dangerous type of surgeon who would submit a piece of tissue without complete data to the pathologist, demanding a diagnosis. Happily, this method of procedure is being changed, and it is the clinician working with his pathologist and with the best interest of his patient at heart that has brought about the changes. Today the status of clinical pathology is that the up-to-date physician must know and be able to do "his stuff" diagnostically and therapeutically better than he ever did it before. The public demands it. Diagnosis calls for the sane use of clinical methods which entail dependable laboratory procedures, all of which must be supervised and correlated by the doctor who is managing the patient, and his consultant.

Kilduffe's discussion is a most thorough outline for a consultant in any branch of medicine. The paper is well written, and is a fine exposition of the idealistic status of the clinical pathologist. Any individual who aspires to become well versed in clinical pathology may well study his article.

ELMER W. SMITH, M. D. (St. Mary's Hospital, San Francisco)—I agree most thoroughly with most of Dr. Kilduffe's article. The physicians and the hospital staffs have been relying so long upon the advice and reports of the lay technician, unsupervised by a medical man, that they naturally would be inclined to place the man with the M. D. degree who does similar work in the same class. I feel that the clinical pathologist, especially one connected with a hospital, should not be expected to do the ordinary routine work. Technicians can readily be trained to do this work in a short time, and in some cases do it more dexterously than the pathologist himself. He should see the reports and have their interpretation in hand so that he can intelligently discuss the case in hand with the physciian or clinician in charge. His services as consulting pathologist or clinical pathologist should merit the same evaluation as that of the consulting clinician. The real clinical pathologist should have time to read, to visit other laboratories for new and supplementary methods, etc. The clinical pathologist is expected to know something on practically every phase of medicine. He is called in for consultation by every specialist from the eye to the genito-urinary specialists, yet his services, in the past at least, have not commanded the same recognition either financially or professionally.

Nowadays there are too many requests of the laboratories for a "diagnosis" rather than a report that will help lead to a diagnosis. I agree with Kilduffe that a proper diagnosis requires the use of our common observations or "senses," as well as laboratory reports; yet in many instances the clinical pathologist, or even the lay technician, is expected to form a diagnosis without one iota of information about the patient. One actual case illustrates this: A physician sent to a pathologist a bit of mucous membrane, requesting a *diagnosis,* without one bit of information regarding the source of the material or any other data. The clinical pathologist does not possess supernatural intelligence, nor should such be expected of him. He should be treated as a fellow practitioner on an equal basis, in a common cause, working for a common end: namely, the diagnosis of the disease and a study of the progress or trend of the same.

E. H. RUEDIGER, M. D. (Angelus Hospital, Los Angeles)—Clinical pathology in the broadest sense of the term really includes everything pertaining to illness except the treatment. A clinical pathologist should be a graduate in medicine and SHOULD BE LICENSED TO PRACTICE MEDICINE. ON SEVERAL OCCASIONS COURTS HAVE RULED THAT DIAGNOSING DISEASE MEANS PRACTICING MEDICINE, AND ANY PERSON NOT LICENSED TO PRACTICE MEDICINE WHO DIAGNOSES DISEASE AND CHARGES A FEE FOR SUCH SERVICES IS GUILTY OF PRACTICING MEDICINE WITHOUT A LICENSE. The clinical pathologist frequently makes diagnoses. For instance, a tumor is sent to him for *diagnosis.* In diphtheria, tuberculosis, malaria, typhoid fever, leukemia, and in many other conditions the diagnosis is frequently made in the laboratory, and a positive diagnosis is usually impossible without laboratory aid. It may be argued that the clinical pathologist acts under directions of a licensed clinician, but this is not tolerated legally and should not be ethically. Under existing laws a surgeon may not remove appendices, thyroids, unless he is licensed to practice medicine and surgery, even if such an operation is requested by someone who is so licensed.

At the present time there is not enough co-operation between clinician and clinical pathologist. Usually the clinician is to blame. He does not seek advice because he wants all the credit for making the diagnosis. On this point I have seen clinicians go so far as to forbid the clinical pathologist from making the diagnosis of tumors. The clinician demanded a description from which he could make his own diagnosis.

For the benefit of medicine and for the benefit of the patients, clinicians and clinical pathologists must work together. Progress in medicine will be impossible unless clinical findings and laboratory findings are carefully compared, and to that extent the clinical pathologist should be a consultant.

WILLIAM FITCH CHENEY, M. D. (Shreve Building, San Francisco)—In a busy world like ours it scarcely seems worth while to spend time discussing the relative importance of individual workers. A man ought to be judged in the medical profession, as in any other vocation, not by the position he holds or the income he receives, but by the quality of what he produces. Whether his work is done in hospital wards, at patients' homes, in laboratories or operating-rooms, *the object of each and every member of the medical profession should be service to humanity; and his ambition should be to do his work with the maximum of benefit to those who entrust themselves to his care.* What difference does it make where the work is done, and who shall decide that one place of work is more honorable than another? *If we all try at all times to be just to one another, as well as to those outside our profession; if we walk humbly, without undue estimation of our own importance in the scheme of things, there will arise no occasion for belittlement of any man's work because we consider it of less value than our own.* We need one another's help, and we cannot get too much in the effort to solve our problems; and the only true measure of another man's worth is not the character of his contribution, but the thoroughness, the intelligence, and the honesty with which he does his part.

WILFRED H. KELLOGG, M. D. (State Hygienic Laboratory, Berkeley)—I believe Dr. Kilduffe has, in the main, the right idea regarding the proper place in medicine of the clinical pathologist, and that in the future it will be recognized more than at present that the field of clinical pathology is essentially a specialty of medicine. At the present time the idea that laboratory procedures are comparatively simple and are of such an exact nature that any so-called technician is competent with a few weeks' experience to be entrusted with the responsibility of a diagnostic laboratory is entirely too prevalent. Strange to say, many physicians who appreciate fully the necessity of education and careful training for themselves will lightly employ anyone who claims to be a "bacteriologist" without further investigation. I have more than once received requests from physicians that I take their office nurse for a couple of weeks' training so that they can do Wassermann tests. *The woods are full of this "domestic servant type of technician," and it will require not only education, but something else to correct the situation, fraught with danger as it is to the patient, to the reputation of the doctor and to the esteem in which a very important part of the practice of medicine is held by the rest of that profession.*

For the purpose of protecting the physicians of this state, of aiding good laboratories to maintain their excellence and of helping those not so good to raise their standards, the State Board of Health has, through the State Hygienic Laboratory, instituted a system of inspection and approval of diagnostic laboratories. The procedure is largely voluntary on the part of the laboratories, and has been received with a cordial welcome by the true clinical pathologists of the state. Those laboratories that have the proper equipment in personnel, apparatus and technic used for the work they are doing are given an official certificate of approval. The inspection does not at present cover tissue diagnosis or bio-chemistry, as these seem outside our field, which is that part of the clinical pathologist's activities having to do with the pub-

lic health. *To date, about forty-five laboratories have been certified, and physicians should look for this certificate on the wall of the laboratory they patronize.*

WILLIAM OPHULS, M.D. (Dean Stanford Medical School, 2398 Sacramento Street, San Francisco)—I have read with the greatest interest the manuscript of the article by Robert A. Kilduffe on "The Status of the Clinical Pathologist." It appears to me that Dr. Kilduffe has presented this subject very well, and that the discussion covers all aspects of the situation. I, therefore, have nothing further to add to this symposium, and I am herewith returning Dr. Kilduffe's manuscript.

L. S. SCHMITT, M. D. (Acting Dean University of California Medical School, University of California Hospital, San Francisco)—The yard-stick with which to measure relations between medical units of whatsoever nature is the benefit derived by the patient. To obtain the greatest benefit, this relation must be characterized by co-operation and team work. Individualism must be submerged.

In order that the best service be rendered to the patient, some one person must be charged with the conduct of the medical service rendered. Obviously, this should be the attending physician or surgeon.

If we accept, as a premise, that the clinical pathologist is a physician skilled in laboratory technique and the interpretation of laboratory procedures, to obtain the desired team work he must have a knowledge of the patient's condition. To do so, he should be versed in the art of clinical observation, but he should also know the uses and abuses of laboratory procedures. If this makes him a "consultant in medicine," it is a change in nomenclature rather than in conditions.

Therefore, the status of the clinical pathologist, as expressed in Dr. Kilduffe's paper, should be that of a specialist to be called upon by the attending physician or surgeon when needed to complete the team and secure the greatest amount of service for the patient.

NEWTON EVANS, M. D. (President College of Medical Evangelists, Loma Linda, California) — The perusal of the paper and the discussions has been most stimulating. The position of the clinical pathologist in the medical profession is a subject needing study, and the essential points in the solution of the problem have been clearly presented. When one approaches the problems with a realization of the paramount importance of the greatest good to the patient, the personal standing of the clinical pathologist will necessarily become a secondary matter.

In my opinion the physician who has, by his earnest work in pathology and laboratory procedures, reached a position of eminence in the medical profession, commands the highest respect. To the young physician the career of the clinical pathologist, for obvious reasons, is comparatively unattractive. In working to a place of prominence in this field he does not have the incentive of the larger income or popular acclaim which come to the surgeon or other specialist or to the general practitioner. In the face of these difficulties the physician who makes his place in the profession as a pathologist is worthy of honor.

RENE BINE, M. D. (San Francisco)—What is a clinical pathologist and what should be his status in medical practice, Kilduffe asks, and so do many others, without apparently reaching an agreement.

The general practitioner looks upon the pathologist—or should—as an individual who has specialized in one branch of medicine—as a consultant to be made use of and called upon to assist whenever, in the course of his professional work, he finds that he requires counsel or assistance in the specialist's chosen field.

The specialist, regardless of his field, must *show* that he can be of help before the general practitioner will call upon him, and the wisest doctor is the one who, knowing his own limitations, is big enough at all times to admit them to himself, his patients, and his colleagues.

In a hospital, where every opportunity for team work exists, the pathologist should have no trouble in receiving the recognition Kilduffe strives for. But his status will depend not upon his title, but upon his ability, personality, and tact. This means a diplomatic attitude toward those of the staff who are not big enough to avail themselves at once of his skill, but who can usually be finally won over. It took time for the children's specialist to show that he knew a little more about children than most of the mass of physicians, and so has it been with the ophthalmologist, the aurist, the orthopedist, the radiologist, etc., etc.

In our battle against disease let us make the best possible use of all our resources, and let us not fight to see whether it was the surgeon or the physician or the bacteriologist who "won the war" and "who has priority in the collection of indemnities"; medical historians or patients or whoever cares will decide that soon enough, rightly or wrongly. Do not waste energy telling anybody what he should not do; either help him do it, or show him modestly and tactfully how much better you can do, in the hope that in time he will look to you for that co-operation which you yearn to give him.

A. W. HEWLETT, M. D. (Professor of Medicine, Stanford Medical School)—Dr. Kilduffe, in his interesting paper, has again called attention to the changing conditions of medical practice. More and more the physician in charge of a patient must depend upon others for data concerning the pathological conditions with which he is dealing. X-ray examinations, clinical laboratory reports and examinations by specialists must be accumulated and interpreted in the light of the patient's symptoms. As a rule, the physician in charge can best interpret the various findings, for he is familiar with all aspects of the case. In certain instances the laboratory worker, roentgenologist or specialist may see a meaning in his findings which would escape the physicians in charge, or he may be able to suggest further examinations which might clear an obscure problem. It is plainly his function to furnish this guidance, either as a comment on his report or after making himself familiar with the patient's general condition. But it is difficult to formulate any rule which will apply to all types of clinical laboratory. For the time being it seems to me that the clinical laboratory should be allowed to develop without restrictive rules. Capable men who have something to offer beyond the usual routine will become recognized, and they should be properly compensated.

WILLIAM J. KERR, M. D. (Associate Professor of Medicine and Acting Head Department of Medicine, University of California Medical School) — Specialization in medicine has led to a variety of difficulties, both for physicians and such workers as have been developed to carry on special lines as adjuncts to the work of the physician. It does not seem that there is any clear solution to many of these difficulties. The complexity of the situation has resulted in much dissatisfaction from the standpoint of the public, and a great deal of controversy among physicians. In the beginning the physician who did the more or less simple procedures in the study of his cases was a better physician, because he could apply these findings directly to the problem at hand. As the procedures which may be used in the study of a given case have multiplied and require the skill of those who are specially trained in their manipulation, it has not been possible for the physician or surgeon to devote the time or the study to the technical details. These details, however, may be mastered by those without a medical training; they may be carried on under the direction of a physician who, with his further training and knowledge, may apply the findings to his work without detriment to the patient. However, such technical assistants can seldom be relied upon for interpretation of the findings and must work in close co-operation and association with the physician. There is such a diverse group of individuals who are doing clinical pathology, either as assistants to physicians or as assistants in a general, private or hospital laboratory, that there can be no set standards as to qualifications or salaries at the present time. There are relatively few physicians who set themselves up as clinical pathologists and supervise the work in large laboratories. To my mind, such workers should be on a salary which is ample to provide for the necessities of life, depending upon their training and ability.

It is natural that one who has had a clinical training and can carry on this work must be called upon frequently for interpretation of findings. This might mean a consultation in a given case, but for the average case, or the great majority of cases under consideration, a bed-

side consultation would not be required. Such a clinical pathologist would be of great service to the clinician, and would at the same time improve his knowledge of clinical matters. He should not feel belittled in the knowledge that he is assisting the clinician in solving the problems at hand; he should delight in the fact that he is developing a field of medicine which, due to the great specialization in recent times, has become necessary. It is quite obvious to me that if the clinical pathologist should feel he must be called into consultation at the bedside frequently, he would soon have practically no time to supervise the work in his department. He would be less and less a pathologist and more and more the clinician, and sooner or later would have to choose as to whether he would devote his time chiefly to the laboratory or chiefly to the bedside. He would soon find the situation intolerable, and because of the possible increase in income would probably become a pure clinician. It is not to be denied he might be a better clinician than his fellows because of his training in clinical pathology, but the physician is not worthy of the name unless he keeps abreast of the work in clinical pathology and is able to apply the findings to the problems at hand. He may do many procedures which are more or less routine which are done as a protection to himself and the patient, but he should always see abnormal specimens or findings for his own education and as a further protection to the patient and to himself. Anyone who relies entirely on the laboratory, whether the work be done by a technician or a clinical pathologist, without frequently seeing the results of the tests himself and being able to interpret them at the bedside, is not a physician of the highest type and should be discouraged. The great interest at the present time in laboratory work has led to excesses in the amount of work done with great economic loss to patients. If we as physicians could be more thoughtful of the limited number of procedures which might be used with profit in a given case, we would better serve both the patient and ourselves in solving his problems.

STANLEY STILLMAN, M. D. (Professor of Surgery, Stanford University Medical School, San Francisco)—Dr. Kilduffe's paper is timely and very rightly calls attention to a situation to which not enough thought has been given. There is a growing recognition of the value and need of obtaining the advice and opinion of the clinical pathologist in a large number of cases. In fact, in many institutions and among many groups of clinicians such consultations are frequent. A notable instance is the prominent part taken by Professor Kolmer in the case of President Coolidge's son. Again, it may be noted that at St. Mary's Hospital in Rochester the clinical and pathological laboratories are in close relation to the operating departments. In a number of other institutions also steps have been taken to make the laboratory and the clinical pathologist more accessible. In many of the older hospitals the clinical and pathological laboratories were placed in remote and almost inaccessible situations, and the clinician was not expected, either as a visitor or for purposes of consultation and discussion.

The situation is changing, and it is a desirable thing to hasten the day when the clinician and laboratory man shall work in closer relationship. The rapidity of the change depends largely on the attitude of the laboratory worker. If he desires to broaden his work and develop his interest in the practical application of his laboratory findings with reference to symptoms, diagnosis and therapy, his knowledge will be widely sought on a consultation basis without in any way interfering with the field of the clinician.

The clinical pathologist is presumed to be a man thoroughly educated in all branches of medicine. His chosen specialty should not take him so far afield as to separate him completely from the clinician. Contacts should be made and maintained not alone through the practitioner, but through diagnostic groups and clinical societies. If discussions of the practical application of laboratory findings by radiologist, bacteriologist, pharmacologist, pathologist, serologist, and metabolist were more common, the inclusion of these specialists in consultation work would rapidly spread.

GERTRUDE MOORE, M. D. (Director Western Laboratories, 2404 Broadway, Oakland)—To my mind the training and aptitude of a clinical pathologist should be both that of a medical technician and a clinical diagnostician. He is the man who knows and supervises the detail of the laboratory, and is at the same time familiar with the strictly clinical side. He is, therefore, the one, before all others, most able to determine tests indicated, to supervise the details of their manipulation and, most important of all, to interpret their meanings in terms of pathology existing in the patient. It is his duty to advise in the use, and method of administration, of certain therapeutic measures. I, therefore, believe that he is in the truest sense a consultant, whether he meets the attending physician at the patient's bedside, in the laboratory, or discusses the case over the telephone. He is the man to whom the worthwhile practitioner looks for aid. In my experience, such consultations are common. They may not be called by that name, and some may bring little financial reward, but they are none the less real consultations, and the clinician is daily realizing more and more their value to him. The time is past when pathology is looked upon as a lowly calling. In my community the pathologist is accorded the same honors and the same consideration by organizations and individuals as is accorded any other member of the profession.

F. R. NUZUM, M. D. (Santa Barbara Cottage Hospital, Santa Barbara)—Dr. Kilduffe's paper points out the uses to which the clinical pathologist and the clinical laboratory should not be put. I believe that these abuses are rapidly becoming much less frequent. I also believe that a proper relation between the clinical pathologist and clinical men is rapidly being reached.

The clinical pathologist must be supplied with sufficient data to give a proper interpretation to any of his findings. The competent clinician does not scorn assistance from the clinical pathologist. He profits through his association with such a man, and in this manner makes himself proficient in the proper evaluation of laboratory work.

In the organization of hospital staffs, proper emphasis must be placed upon these matters, so that men likely to misuse the clinical laboratory in their work may become properly educated.

WALTER V. BREM, M. D. (Pacific Mutual Building, Los Angeles)—It is difficult for a clinical pathologist to discuss the status of clinical pathologists without speaking from his own experience, and in speaking from his own experience he may reveal an unenviable attitude of mind—either an undue egotism or an inferiority complex.

However, I will venture to say that, although we have met with some confusion regarding the place of pathology in the practice of medicine, there has never been any question regarding our professional status, either on the staffs of various hospitals or in the different medical societies, and we have been called in consultation, remunerative or otherwise, as often as is good for our laboratory work. We feel, therefore, that the medical profession has been more than generous, and we believe that the status of the clinical pathologist is a question of personal equation.

We do feel, however, that the problem of stimulating high-class men to specialize in pathology is a much more serious and pressing problem. Indeed, adequately trained tissue pathologists are becoming more and more scarce, and fewer physicians are choosing pathology as a specialty. The reason for this is that the importance of pathology, especially tissue pathology, is not recognized sufficiently well to cause provisions to be made for the adequate compensation of pathologists, that is, for compensation commensurable with that of his clinical colleague of equal ability. Moreover, when efficient and honest laboratory service is available many physicians and surgeons send their work elsewhere because of smaller fees or direct or indirect rebating. This tends to depress the fees of the real pathologist, fees which are already too small, or tempts him to indulge in unethical practices.

Of course, this situation renders the field unattractive for men of the highest ability. When such men are induced to specialize in pathology there will be no question of status.

A. M. MOODY, M. D. (St. Francis Hospital, San Francisco)—I have carefully read the article by Dr. Robert A.

Kilduffe on "The Status of the Clinical Pathologist," together with the appended discussions.

Experience has taught me that it is not only impossible, but impractical for a medical director of laboratory work to spend the amount of time in clinical work necessary to make him really proficient in things clinical, without being correspondingly neglectful of his duty as pathologist.

The degree of helpful application of any medical man's experience, in whatever branch of medicine he may be practicing, will alone determine the status of that individual.

DOCTOR R. A. KILDUFFE (closing)—The main purpose of the paper was not to present any set or individual viewpoint, but to arouse discussion of a problem meriting attention.

Those familiar with the trend of current discussion of medical education and medical practice cannot fail to appreciate that neither have as yet attained the ideal; nor can it be gainsaid that the fullest clinical utilization of laboratory resources as a part of the clinical study of disease is the exception rather than the rule—whether one considers the recent graduate who, too often, looks upon laboratory examinations as the *sine qua non* of clinical study, or the older practitioner who may either give them an unwarranted significance or more or less disregard them entirely.

Laboratory and clinical medicine are not distinct entities; one is complementary to the other. The clinician must know enough of laboratory medicine, of pathology, to utilize its methods wisely and to the best advantage. The pathologist must be sufficiently a clinician to interpret in terms of the patient the abnormalities he demonstrates in the laboratory.

It is well, indeed, to commend the thoroughness of one's colleague and the integrity of his efforts; but it is better to be eager and able to utilize them to the fullest extent.

If the entrance of the laboratory, as personified by the pathologist, into the wards or the problems of clinical medicine as an active participant in their attempted solutions is to be looked upon as an intrusion, then all that is necessary is a sufficient number of technicians to handle the work. It seems more sensible and more conducive to success in the efforts to solve the clinician's problems to expect and demand of the pathologist that he be something more than a manipulative expert. A clear understanding of the situation demands a preliminary clear and distinct differentiation of the pathologist from the technician.

It must be recognized that clinical pathology is a specialized branch of the practice of medicine, and that it is neither limited to nor comprised in the mechanical and more or less automatic performance of technical manipulations in the form of tests. There is some reason to maintain that in the minds of some, at least, the conception of clinical pathology has been limited to tests of one sort or another, and of the pathologist as the performer of tests.

Ewing summarizes the function of the pathologist as:

"1. To investigate the causes of fatalities . . . to elucidate the causes of disease . . . and to correct partial or erroneous diagnoses.

2. To keep himself familiar with the literature and progress of the medical sciences.

3. To co-operate with the internist in general diagnosis and to serve the surgeon in gross anatomic and physical diagnosis.

4. To serve as a consultant in the wards and the operating-rooms where, by virtue of his special knowledge, he should be able to bring data with which, as a rule, the clinician is less familiar.

5. To supervise the work of the clinical laboratory . . . restraining excessive demands, establishing correct indications for the resort to laboratory tests, and aiding in clinical research."

Doctor, if that addict you prescribe for happens to be a detective, you are in trouble with the law.

If he is not an under-cover agent, but another who really should not have the drug, what about your conscience?

GLUCOSE INTOLERANCE ASSOCIATED WITH ECZEMA

By SAMUEL AYRES JR., M. D., *Los Angeles*

(*From the Department of Dermatology, White Memorial Hospital*)

A preliminary report is presented, dealing with the glucose tolerance reactions in a series of thirty-six consecutive cases of typical eczema.

The tests were made in two laboratories, each using the Folin-Wu colorimetric technic.

The fasting blood sugar values in these cases of eczema were not found to be abnormally high except in a few cases.

Very striking deviations from normal were found, however, at the one and two-hour periods, following the administration of the test glucose solution. Of the thirty-six eczema cases, 33.3 per cent showed 200 mgs. or more of glucose per 100 cc. of blood at the end of one hour in contrast with only 5.6 per cent of 300 normal controls, and 16.6 per cent of the eczema cases showed 200 mgs. or more at the end of two hours in contrast with only 0.8 per cent of 253 normal controls.

Of the thirty cases which were tested at the end of three hours, 40 per cent had not returned to a conservative estimate of normal (110 mgs.).

Important discussion by Oscar V. Schroeter, Los Angeles; Kendal P. Frost, Los Angeles; Lorena M. Breed, Pasadena; George Piness, Los Angeles; H. P. Jacobson, Los Angeles.

REPEATED attempts to discover the cause of eczema have led gradually to a realization of the fact that there is no one cause. The conception of eczema as a symptom, rather than a disease entity, is helping materially in solving the riddle of its causation. No one regards abdominal pain as a disease; it is merely a symptom of one out of many possible causes. The mechanism by which the pain is produced, namely, stimulation of the visceral or peritoneal receptor nerve-endings, with passage of the impulse to the brain and frequently to the corresponding cutaneous area, is the same in many conditions. Thus, an acutely inflamed appendix, a gallstone, a tabetic crisis, or a green-apple "tummyache" may produce the symptom of abdominal pain, although there will be certain variations in its location, intensity, quality, etc. In the same manner, apparently, a number of causative factors, may, through the medium of the cutaneous vaso-motor system, produce the symptom which is commonly recognized as eczema. Sensitization to the proteins of certain foods, pollens, animal emanations, etc., classed together as allergy, constitutes one of the major causes of eczema. Improper utilization of fat, especially in infants, has been claimed also to be causative in a certain proportion of cases of eczema. The substances which may produce an eczematous reaction through local irritation are too numerous to mention. Poison oak, lacquer, dyes, chemical agents of all kinds, are some of the more common examples.

Disturbances in carbohydrate metabolism have long been recognized in a half-hearted way as being responsible for, or at least associated with, eczema in a few instances. Practically none of the textbooks on general medicine, even in the chapters on carbohydrate metabolism, make any especial mention of eczema as a possible manifestation of a dis-